Check for updates

STUDY PROTOCOL

Instruments for assessing parent-infant relationships: a scoping review protocol

[version 1; peer review: 3 approved with reservations]

Sónia Brandão[1,2], Patrícia Souto[1,2], Andreia Soares Gonçalves[2-4], Rosa Silva[1,2], Paula Prata[1,2], Anat Talmon[5], Ewa Gieysztor[6], Patrícia Gonçalves[1,2], Semra Pinar[7,8], Nicola Carone[9], Tânia Brandão[10], Alena Lochmannová[11], Özlem Şensoy[12], Esra Ardahan Akgül[13], Kristiina Uriko[14], Seda Ardahan Sevgili[15], Elif Bulut[16], Dora d'Orsi[10], Rajesh Shigdel[17], Demet Gülaldı[18], Otília Freitas[19,20], Pelin Dikmen-Yildiz[21], Lence Miloseva[22], Mirlinda Markaj[23], Gilberta Sousa[19,20], Pinar Gencpinar[24], Aycin Ezgi Onel[25], Carmen Power[26], Özlem Koç[27], Tuğçe Sönmez[27], Diana Azevedo[28-30], Edanur Tar Tar Bolacali[31], Bahar Aksoy[32], Burcu Kömürcü Akik[33], Ayça Demir Yıldırım[34], Hazal Özdemir Koyu[35], Wilson Abreu[1,2], Tuğba Yılmaz Esencan[36], Margarida Reis Santos[1,2], Mário Santos[37], Remziye Can[38], Anna-Lena Zietlow[39], Rafael A. Caparros-Gonzalez[40,41]

[1]Nursing School of Porto, University of Porto (ESEP), Porto, 4200-072, Portugal
[2]RISE-Health Research Unit, Nursing School of Porto, University of Porto (ESEP), Porto, 4200-072, Portugal
[3]School of Health, Polytechnic Institute of Viana do Castelo, Viana do Castelo, Portugal
[4]Health Sciences Research Unit (UICISA:E), Coimbra, Portugal
[5]Paul Baerwald School of Social Work and Social Welfare, The Hebrew University of Jerusalem, Jerusalem, Jerusalem District, Israel
[6]Faculty of Physiotherapy, Wroclaw Medical University, Wroclaw, Poland
[7]Department of Midwifery, Kahramanmaraş Sütçü Imam University, Kahramanmaraş, Türkiye, Kahramanmaras, Kahramanmaraş Province, Turkey
[8]School of Psychology, University of Leeds, Leeds, England, UK
[9]Department of Systems Medicine, University of Rome Tor Vergata, Rome, Lazio, Italy
[10]William James Center for Research, Ispa – Instituto Universitário, Lisbon, Lisbon, Portugal
[11]Faculty of Medicine in Pilsen, Charles University, Pilsen, Czech Republic
[12]Department of Pediatric Nursing, School of Nursing, Istanbul University, Istanbul, Türkiye, Istanbul, Turkey
[13]Faculty of Health Sciences, İzmir Katip Çelebi University, Izmir, Türkiye, Izmir, İzmir, Turkey
[14]Department of Psychology and Behavioral Sciences, School of Natural Sciences and Health, Department of Psychology and Behavioral Sciences, Tallinn University, Tallinn, Estonia
[15]Faculty of Nursing, Ege University, Izmir, Türkiye, Izmir, Turkey
[16]Faculty of Health Sciences, Tokat Gaziosmanpaşa University, Tokat, Türkiye, Tokat, Tokat, Turkey
[17]Department of Global Public Health and Primary Care, University of Bergen, Bergen, Norway
[18]Faculty of Health Sciences, Child Development, Uskudar University, Istanbul, Türkiye, Istanbul, İstanbul, Turkey
[19]School of Health, University of Madeira, Funchal, Madeira, Portugal
[20]RISE-HEALTH, School of Health, University of Madeira, Funchal, Portugal
[21]Department of Psychology, Kırklareli University, Kirklareli, Türkiye, Kırklareli, Kırklareli, Turkey
[22]Faculty of Medical Sciences, Goce Delcev University, Stip, North Macedonia, Shtip, Municipality of Shtip, North Macedonia
[23]Faculty of Social and Economic Sciences, Comenius University in Bratislava, Bratislava, Bratislava Region, Slovakia
[24]Neuroscience Center, Izmir Katip Çelebi University, Izmir, Türkiye, Izmir, İzmir, Turkey

[25]Faculty of Nursing, Ege University, Izmir, Türkiye, Izmir, Turkey
[26]Independent psychologist, consultant and educator, Bristol, UK
[27]Faculty of Health Sciences, Tarsus University, Mersin, Türkiye, Tarsus, Mersin Province, Turkey
[28]Life and Health Sciences Research Institute (ICVS), University of Minho, Braga, Portugal
[29]School of Medicine, University of Minho, Braga, Portugal
[30]Department of Obstetrics and Gynecology, ULS Braga, Braga, Portugal
[31]Faculty of Health Sciences, Kirsehir Ahi Evran University, Kirsehir, Türkiye, Kırşehir, Kırşehir, Turkey
[32]Kumluca Faculty of Health Sciences, Akdeniz University, Antalya, Türkiye, Antalya, Antalya, Turkey
[33]Department of Psychology, Ankara University, Faculty of Languages and History-Geography, Ankara, Türkiye, Ankara, Ankara, Turkey
[34]Department of Midwifery, Uskudar University, Istanbul, Türkiye, Istanbul, İstanbul, Turkey
[35]Nursing Faculty, Gazi University, Ankara, Türkiye, Ankara, Ankara, Turkey
[36]Department of Midwifery, Faculty of Health Sciences, Department of Midwifery, Uskudar University, Istanbul, Türkiye, Istanbul, İstanbul, Turkey
[37]RISE-Health, Santarém Polytechnic University, Santarém, Portugal
[38]Mustafa Kemal Atatürk Vocational and Technical High School, Ankara, Türkiye, Ankara, Turkey
[39]Faculty of Psychology, Dresden University of Technology, Dresden, Germany
[40]Instituto de Investigacion Biosanitaria de Granada, Granada, Andalusia, Spain
[41]Department of Nursing, University of Granada, Granada, Andalusia, Spain

v1 **First published:** 16 May 2026, **6**:171
https://doi.org/10.12688/openreseurope.23592.1
Latest published: 16 May 2026, **6**:171
https://doi.org/10.12688/openreseurope.23592.1

Abstract

Background

The parent-infant relationship plays a central role in early emotional, cognitive, and social development. Difficulties in bonding, interaction, attachment, or parental sensitivity during the first two years of life may have lasting consequences for children and families, making early identification essential for timely support and intervention. Although a range of instruments has been developed to assess parent-infant relational processes, the evidence remains dispersed, and no comprehensive mapping of instruments specifically applicable from birth to 24 months has been identified. This scoping review aims to map the instruments used to assess parent-infant relationships during the first 24 months of life and to describe their main characteristics.

Methods

This scoping review protocol follows the Joanna Briggs Institute methodology for scoping reviews. Studies describing instruments used to assess the parent-infant relationship among parents of typically developing infants aged 0–24 months will be considered across any clinical, community, research, or cultural context. Eligible

Open Peer Review

Approval Status ? ? ?

	1	2	3
version 1 16 May 2026	? view	? view	? view

1. **Camilla Rosan**, Anna Freud, London, UK
2. **Lars Kuchinke**, International Psychoanalytic University Berlin, Berlin, Germany
3. **Anne Christine Stuart**, University of Copenhagen, Copenhagen, Denmark

Any reports and responses or comments on the article can be found at the end of the article.

instruments may assess bonding, interaction, attachment, parental sensitivity, or related relational dimensions. Studies involving preterm infants, infants with medical conditions or developmental disorders, or instruments focused exclusively on parental stress or mental health without explicit assessment of relational dynamics will be excluded. A three-step search strategy will be used to identify published and unpublished studies and grey literature. Two reviewers will independently screen records, extract data using a piloted charting form, and summarise findings in tables and descriptive narrative form. The final scoping review will be reported in accordance with the PRISMA extension for Scoping Reviews (PRISMA-ScR). This review will provide an overview of available instruments, their characteristics, contexts of use, psychometric properties, adaptations, and short-form versions. This protocol is registered in the Open Science Framework (DOI: 10.17605/OSF.IO/HRVX9).

Plain Language summary

The relationship between a parent and a baby is very important during the first two years of life. Early experiences of closeness, emotional connection, and day-to-day interaction can influence a child's emotional, social, and cognitive development. When difficulties in this relationship are identified early, families can receive support sooner.

Many tools have been created to assess the parent-infant relationship. These include questionnaires, observation tools, interviews, and rating scales. However, the available information is spread across many studies, and it is not easy to know which instruments exist, what they measure, or in which settings they have been used.

This article presents the protocol for a scoping review. A protocol is a step-by-step plan that explains how the review will be carried out. Our review will identify and map instruments used to assess the parent-infant relationship from birth to 24 months of age. We will include studies from different countries and settings, such as healthcare, community, and research contexts. We will focus on typically developing infants and on instruments that assess aspects such as bonding, interaction, attachment, and parental sensitivity.

The findings will help researchers and health professionals better understand which instruments are available, how they are used, and where important gaps still exist.

Keywords

assessment instruments; parent-infant relationship; psychometric properties; scoping review

This article is included in the COST Actions gateway.



This article is included in the Maternal Perinatal Stress collection.

Corresponding author: Sónia Brandão (soniabrandao@esenf.pt)

Author roles: Brandão S: Conceptualization, Methodology, Project Administration, Writing – Original Draft Preparation, Writing – Review & Editing; **Souto P**: Conceptualization, Writing – Original Draft Preparation, Writing – Review & Editing; **Soares Gonçalves A**: Conceptualization, Writing – Original Draft Preparation, Writing – Review & Editing; **Silva R**: Conceptualization, Writing – Original Draft Preparation, Writing – Review & Editing; **Prata P**: Conceptualization, Writing – Original Draft Preparation, Writing – Review & Editing; **Talmon A**: Writing – Review & Editing; **Gieysztor E**: Writing – Review & Editing; **Gonçalves P**: Writing – Review & Editing; **Pinar S**: Writing – Review & Editing; **Carone N**: Writing – Review & Editing; **Brandão T**: Writing – Review & Editing; **Lochmannová A**: Writing – Review & Editing; **Şensoy Ö**: Writing – Review & Editing; **Ardahan Akgül E**: Writing – Review & Editing; **Uriko K**: Writing – Review & Editing; **Ardahan Sevgili S**: Writing – Review & Editing; **Bulut E**: Writing – Review & Editing; **d'Orsi D**: Writing – Review & Editing; **Shigdel R**: Writing – Review & Editing; **Gülaldı D**: Writing – Review & Editing; **Freitas O**: Writing – Review & Editing; **Dikmen-Yildiz P**: Writing – Review & Editing; **Miloseva L**: Writing – Review & Editing; **Markaj M**: Writing – Review & Editing; **Sousa G**: Writing – Review & Editing; **Gencpinar P**: Writing – Review & Editing; **Ezgi Onel A**: Writing – Review & Editing; **Power C**: Writing – Review & Editing; **Koç Ö**: Writing – Review & Editing; **Sönmez T**: Writing – Review & Editing; **Azevedo D**: Writing – Review & Editing; **Tar Bolacali ET**: Writing – Review & Editing; **Aksoy B**: Writing – Review & Editing; **Kömürcü Akik B**: Writing – Review & Editing; **Demir Yıldırım A**: Writing – Review & Editing; **Özdemir Koyu H**: Writing – Review & Editing; **Abreu W**: Writing – Review & Editing; **Yılmaz Esencan T**: Writing – Review & Editing; **Reis Santos M**: Writing – Review & Editing; **Santos M**: Writing – Review & Editing; **Can R**: Writing – Review & Editing; **Zietlow AL**: Writing – Review & Editing; **A. Caparros-Gonzalez R**: Writing – Review & Editing

Competing interests: No competing interests were disclosed.

Grant information: This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No [CA22114](Maternal Perinatal Stress and Adverse Outcomes in the Offspring: Maximising infants´development).
The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Copyright: © 2026 Brandão S *et al*. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

How to cite this article: Brandão S, Souto P, Soares Gonçalves A *et al.* **Instruments for assessing parent-infant relationships: a scoping review protocol [version 1; peer review: 3 approved with reservations]** Open Research Europe 2026, **6**:171 https://doi.org/10.12688/openreseurope.23592.1

First published: 16 May 2026, **6**:171 https://doi.org/10.12688/openreseurope.23592.1

Introduction

Early childhood development is a global health priority, closely aligned with the Sustainable Development Goals and the Convention on the Rights of the Child (United Nations, 2016). Experiences and care during this period lay the foundation for health and development across the lifespan (Britto et al., 2017). The first 1,000 days of life, from pregnancy to a child's second birthday, represent a particularly sensitive and influential developmental window (United Nations Children's Fund, 2017). During this time, the brain undergoes rapid growth and major changes in communication, social functioning, emotional regulation, and cognitive development (Hodel, 2018; Sanefuji et al., 2021). Because early neurodevelopment is highly responsive to environmental influences, both positive and negative, timely support during this period can have lasting effects on child and family well-being (Hodel, 2018; United Nations Children's Fund, 2017).

Contemporary parenting takes place in increasingly complex and changing contexts shaped by sociodemographic transitions, migration, technological advances, globalized information, inequalities in access to care, varied levels of health literacy, changing family structures, and diverse cultural values related to family life and caregiving. These transformations influence parenting experiences and caregiving practices and reinforce the importance of supporting healthy parent-infant relationships across settings and populations.

The parent-infant relationship is a dynamic, reciprocal, and evolving emotional and behavioural connection that develops through repeated interactions between a caregiver and an infant (Parent-Infant Foundation, 2023). It provides the foundation for attachment, co-regulation, and socioemotional and cognitive development (Parent-Infant Foundation, 2023). A substantial body of research has shown that the quality of early parent-infant interactions is associated with developmental outcomes and life trajectories (Ainsworth, 1979; Bowlby, 1982; Bozicevic et al., 2022; Frosch et al., 2021; Kiel & Kalomiris, 2015; Rusanen et al., 2024). This relationship is shaped by multiple factors, including parental mental health, cultural beliefs, and environmental stressors (Aktar et al., 2019; Stein et al., 2014). Central to this process is sensitive and responsive caregiving, defined as the caregiver's ability to perceive, interpret, and respond appropriately and promptly to the infant's cues (Ainsworth, 1979). Such responsiveness promotes secure attachment, emotional regulation, and socio-cognitive development (Gagliardi, 2021; Lucas et al., 2018; Radoš et al., 2020; Radoš et al., 2024).

Supporting parents during this early period can enhance child development and well-being, promoting positive outcomes for both parents and infants (Barlow et al., 2021; Blizzard et al., 2018; Feinberg & Kan, 2008; Givrad et al., 2021). Early identification of difficulties in bonding, interaction, attachment, or parental responsiveness is therefore essential to enable timely and targeted support (de Cock et al., 2016; Toivo et al., 2023). However, the identification and characterization of such difficulties depend on the availability and appropriate use of assessment instruments. The choice of instrument is therefore important not only for clinical assessment and decision-making, but also for research comparability and the development of evidence-informed, family-centred care (Swan et al., 2023).

Several instruments have been developed to assess different dimensions of the parent-infant relationship. Some focus on postnatal bonding, such as the Postpartum Bonding Questionnaire (PBQ; Brockington et al., 2006); others assess interaction quality, such as the Parent-Child Early Relational Assessment (PCERA; Clark, 1999) and the Parent-Infant Interaction Observation Scale (PIIOS; Svanberg et al., 2013). Instruments such as the Maternal Postnatal Attachment Scale (MPAS; Condon & Corkindale, 1998) examine attachment-related aspects. However, these instruments differ in their theoretical foundations, constructs assessed, format, timing of administration, and context of use. Given the complexity of the parent-infant relationship and the practical constraints of healthcare and research settings, careful consideration is needed regarding what should be assessed, when, where, and how (McClimans, 2017; Swan et al., 2023).

Although the importance of the parent-infant relationship is widely recognized, information on instruments used to assess this construct during the first 24 months of life remains dispersed across the literature. As a result, it is difficult to obtain a comprehensive overview of which instruments are available, what dimensions they assess, how they have been applied, and what is known about their characteristics and measurement properties. Mapping this body of evidence is therefore necessary to identify the scope of available instruments, describe their main features, and highlight gaps in the literature (Levac et al., 2010; Peters et al., 2024). Such a review may support clinicians, researchers, and policymakers in selecting appropriate tools and guide future research in this field.

A preliminary search of PROSPERO, PubMed, the Cochrane Database of Systematic Reviews, and JBI Evidence Synthesis identified no published or ongoing scoping review addressing this topic. Some systematic reviews have examined specific dimensions of the parent-infant relationship, including parent-report measures of bonding or attachment (Nascimento et al., 2023; Wittkowski et al., 2020) and clinician-rated measures (Shone et al., 2025). However, these reviews have focused on narrower aspects of the construct and do not provide a broad mapping of instruments used

to assess the parent-infant relationship from birth to 24 months of age. Therefore, this scoping review will provide a comprehensive overview of instruments used to assess the parent-infant relationship during the first two years of life.

Protocol

Objective and review questions

The aim of this scoping review is to map the instruments used to assess parent-infant relationships during the first 24 months of life and to describe their main characteristics. The review will address the following questions: (1) What instruments are available to assess the parent-infant relationship from birth to 24 months? and (2) What are the key characteristics of these instruments, including their theoretical foundation, target constructs, psychometric properties, application, response options, score range, and number of items? In addition, the review will explore which instruments have been adapted, validated, or culturally and/or linguistically modified from their original versions, and which instruments offer short-form or simplified versions.

Protocol registration and reporting

This protocol has been registered in the Open Science Framework (OSF) (DOI: 10.17605/OSF.IO/HRVX9). The review will be conducted in accordance with the Joanna Briggs Institute (JBI) methodology for scoping reviews (Peters et al., 2024) and the final review will be reported in line with the PRISMA extension for Scoping Reviews (PRISMA-ScR) (Tricco et al., 2018).

Eligibility criteria

Participants

This review will include studies involving parents of typically developing infants aged 0–24 months. Eligible participants include biological parents, adoptive parents, single parents, and parents with minoritized sexual and/or gender identities.

Studies involving preterm infants born before 37 weeks of gestation or infants with known medical conditions or developmental disorders, such as low birth weight, congenital anomalies, genetic syndromes, or neurodevelopmental disorders, will be excluded. These conditions are known to influence early parent-infant interactions and bonding processes (Ionio et al., 2017; Korja et al., 2012; Treyvaud et al., 2019). Studies involving parents with formally diagnosed psychological disorders, based on diagnostic criteria such as the DSM-IV, DSM-5, or ICD-11, will also be excluded. By focusing on typically developing infants, this review seeks to examine how parent-infant relationships are assessed under standard developmental conditions.

Concept

This review will include instruments that assess one or more dimensions of the parent-infant relationship, including bonding, interaction patterns, attachment-related behaviours, and parental sensitivity or responsiveness. The parent-infant relationship is understood here as a multidimensional construct encompassing emotional, behavioural, and cognitive exchanges between a parent and an infant during the first 24 months of life (Parent-Infant Foundation, 2023).

Bonding refers to the parent's emotional connection with the infant and is often assessed through self-report instruments such as the Postpartum Bonding Questionnaire (Brockington et al., 2006) or the Mother-to-Infant Bonding Scale (Taylor et al., 2005). Interaction patterns involve observable reciprocal behaviours between parent and infant, such as synchrony, mutual gaze, turn-taking, and responsiveness, and may be assessed through observational tools such as the Parent-Infant Interaction Observation Scale (Svanberg et al., 2013). Attachment-related aspects may be examined through instruments such as the Maternal Postnatal Attachment Scale (Condon & Corkindale, 1998). Parental sensitivity and responsiveness refer to the caregiver's ability to accurately perceive and appropriately respond to the infant's cues and may be assessed using tools such as the Parent-Child Early Relational Assessment (Clark, 1999).

Eligible instruments may assess a single relational dimension or multiple dimensions, provided that they explicitly focus on relational processes involving both parent and infant. Instruments that assess parenting stress, parental mental health, or infant developmental outcomes without explicitly assessing relational dynamics will be excluded. Eligible instruments may include self-report questionnaires, structured or semi-structured interviews, observational tools, and other validated or experimental assessment approaches. Instruments covering age ranges beyond 24 months will not be excluded if they also include the 0–24-month period.

Context

All practice and research settings will be considered, including clinical, community, and academic contexts. Studies from all geographical regions and cultural contexts will be eligible for inclusion. Information on the contexts in which instruments have been applied will be extracted to support interpretation of their applicability across different settings and populations.

Types of sources

This scoping review will consider quantitative, qualitative, and mixed methods studies that provide information on instruments used to assess parent-infant relationships during the first two years of life. Systematic reviews, text and opinion papers, conference abstracts, conference proceedings, unpublished studies, and grey literature will also be considered where they provide relevant information about assessment instruments. Studies focusing exclusively on outcomes of the parent-infant relationship without describing the assessment instruments used will be excluded.

Search strategy

The search strategy will aim to identify both published and unpublished studies relevant to instruments used to assess the parent-infant relationship. An initial limited search of MEDLINE (PubMed) and CINAHL Complete (EBSCO) was conducted to identify relevant articles and to analyse keywords, text words, and index terms used in titles and abstracts. These terms informed the development of the search strategy for MEDLINE, which will then be adapted for each included database.

No restrictions will be applied regarding publication date or language. Documents published in languages other than English will be translated using DeepL or Google Translate. If translation is not feasible through these tools and no member of the review team is able to assess the text, the study will be excluded and the reason for exclusion will be documented.

The following databases will be searched: MEDLINE (PubMed), CINAHL Complete (EBSCO), APA PsycINFO (EBSCO), Web of Science, Scopus, ERIC, Psychology and Behavioral Sciences Collection, Nursing & Allied Health Database (ProQuest), MedicLatina, and SciELO. To identify grey literature, ProQuest Dissertations and Theses and British Library EThOS will also be searched. Screening and data charting materials supporting this protocol are available as extended data through the Open Science Framework project.

Study selection

Following the search, all identified records will be collated and uploaded to Covidence systematic review software, where duplicates will be removed. After pilot testing of the screening process, two reviewers will independently screen titles and abstracts against the eligibility criteria. Potentially relevant records will be retrieved in full text and assessed independently by two reviewers.

Reasons for exclusion at the full-text stage will be recorded and reported in the final review. Disagreements between reviewers at any stage will be resolved through discussion or, where necessary, with the involvement of a third reviewer. Authors of published or unpublished studies may be contacted to clarify unclear or missing information. The selection process will be presented in a PRISMA flow diagram (Page et al., 2021).

Data extraction

Data will be extracted independently by two reviewers using a draft charting form developed by the review team. Extracted information will include details related to participants, concept, context, study methods, and key findings relevant to the review questions. The draft extraction form will be piloted and revised as necessary during the review process. Any modifications made to the charting form will be described in the final review. Where required, authors of included studies will be contacted up to two times to request missing or additional information.

Data presentation and synthesis

Extracted data will be presented in tabular and/or diagrammatic form in a way that aligns with the objective and review questions of this scoping review. For the first review question, data will include authors, year of publication, country, study aims, study design, target population and sample size, setting, and type of instrument. For the second review question, data will include key characteristics of each instrument, such as original language, year of development, theoretical foundation, target constructs, application details, response options, score range, number of items, and

psychometric properties. Additional tables will be used to capture information on culturally or linguistically adapted versions and on short-form or simplified versions of instruments. A narrative summary will accompany the tabulated results and explain how the findings relate to the review questions.

Dissemination

The findings of this scoping review will be disseminated through publication in a peer-reviewed journal and through dissemination activities within the COST Action TREASURE network. The review is expected to support researchers, clinicians, and other stakeholders in identifying available instruments and understanding their characteristics, contexts of use, and current evidence gaps.

Conclusions

This scoping review will provide a comprehensive overview of the instruments used to assess parent-infant relationships during the first 24 months of life. By mapping the available tools and describing their main characteristics, including their theoretical foundations, constructs assessed, application, psychometric properties, adaptations, and short-form versions, the review is expected to support researchers and clinicians in identifying appropriate instruments for use in research and practice.

The review may also help to clarify how the parent-infant relationship has been operationalised across different settings, populations, and cultural contexts, and to identify areas where evidence remains limited or fragmented. This may inform future methodological work, cross-cultural adaptation, and research on the use and development of assessment instruments in early childhood and family care.

A potential limitation of the review is that some relevant instruments or supporting materials may be difficult to identify if they are insufficiently described in published reports or are only available in grey literature or non-English sources. Nevertheless, the broad search strategy, inclusion of grey literature, and use of transparent screening and data charting procedures are intended to maximise the comprehensiveness and usefulness of the review.

Ethics and consent

Ethical approval and informed consent were not required for this study because it is a protocol for a scoping review based on published literature, unpublished studies, and grey literature, and does not involve the collection of primary data from human participants. The review will be conducted using publicly available or retrievable sources and in accordance with established methodological guidance for scoping reviews.

Data availability

Underlying data

No underlying data are associated with this article because this manuscript is a study protocol for a scoping review.

Extended data

Open Science Framework (OSF) project: *Instruments for the assessment of parent-infant relationships: A scoping review protocol.* https://osf.io/n6cvz/files/osfstorage (Brandão et al., 2025).

Persistent identifier: https://doi.org/10.17605/OSF.IO/HRVX9

This OSF project contains the following extended data supporting this protocol:

- Phase 1 – Title and Abstract Screening.pdf
- Phase 2 – Full-Text Screening.pdf
- Data Extraction Instrument.pdf
- Data Presentation Template-Question 1.pdf
- Data Presentation Template-Question 2.pdf
- Data Presentation Template-SubQuestion 1.pdf
- Data Presentation Template-SubQuestion 2.pdf

All materials are openly available under a Creative Commons Attribution 4.0 International (CC-BY 4.0) licence: https://creativecommons.org/licenses/by/4.0/

Reporting guidelines

This protocol was developed in accordance with the JBI methodology for scoping reviews. The final scoping review will be reported according to PRISMA-ScR.

Acknowledgements

The authors would like to thank all members of the COST Action CA22114 – TREASURE for their valuable contributions to the collaborative discussions and consensus-building process that supported this work.

During manuscript preparation, ChatGPT (OpenAI, GPT-5) was used to support language editing and formatting. All outputs were critically reviewed by the authors, who take full responsibility for the final content of the manuscript.

References

Ainsworth MS: **Infant–mother attachment.** *Am. Psychol.* 1979; **34**(10): 932–937.
Publisher Full Text

Aktar E, Qu J, Lawrence PJ, *et al.*: **Fetal and infant outcomes in the offspring of parents with perinatal mental disorders: Earliest influences.** *Front. Psych.* 2019; **10**: Article 391.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Barlow J, Sleed M, Midgley N: **Enhancing parental reflective functioning through early dyadic interventions: A systematic review and meta-analysis.** *Infant Ment. Health J.* 2021; **42**(1): 21–34.
Publisher Full Text

Blizzard AM, Barroso NE, Ramos FG, *et al.*: **Behavioral parent training in infancy: What about the parent–infant relationship?.** *J. Clin. Child Adolesc. Psychol.* 2018; **47**(sup1): S341–S353.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Bozicevic L, Ponti L, Smorti M, *et al.*: **Psychological well-being, prenatal attachment, and quality of early mother-infant interaction: A pilot study with a sample of mothers with or without cancer history.** *Front. Psychol.* 2022; **13**.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Bowlby J: **Attachment and loss: Retrospect and prospect.** *Am. J. Orthopsychiatry.* 1982; **52**(4): 664–678.
PubMed Abstract | **Publisher Full Text**

Brandão S, Souto P, Soares Gonçalves A, *et al.*: **Instruments for the assessment of parent-infant relationships: A scoping review protocol [Protocol].** *Open Science Framework.* 2025.
Publisher Full Text

Britto PR, Lye SJ, Proulx K, *et al.*: **Nurturing care: Promoting early childhood development.** *Lancet.* 2017; **389**(10064): 91–102.
Publisher Full Text

Brockington IF, Fraser C, Wilson D: **The Postpartum Bonding Questionnaire: A validation.** *Arch. Womens Ment. Health.* 2006; **9**(5): 233–242.
Publisher Full Text

Clark R: **The parent-child early relational assessment: A factorial validity study.** *Educ. Psychol. Meas.* 1999; **59**(5): 821–846.
Publisher Full Text

Condon JT, Corkindale CJ: **The assessment of parent-to-infant attachment: Development of a self-report questionnaire instrument.** *J. Reprod. Infant Psychol.* 1998; **16**(1): 57–76.
Publisher Full Text

de Cock ESA, Henrichs J, Vreeswijk CMJM, *et al.*: **Continuous feelings of love? The parental bond from pregnancy to toddlerhood.** *J. Fam. Psychol.* 2016; **30**(1): 125–134.
PubMed Abstract | **Publisher Full Text**

Feinberg ME, Kan ML: **Establishing family foundations: Intervention effects on coparenting, parent/infant well-being, and parent–child relations.** *J. Fam. Psychol.* 2008; **22**(2): 253–263.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Frosch CA, Schoppe-Sullivan SJ, O'Banion DD: **Parenting and child development: A relational health perspective.** *Am. J. Lifestyle Med.* 2021; **15**(1): 45–59.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Gagliardi M: **How our caregivers shape who we are: The seven dimensions of attachment at the core of personality.** *Front. Psychol.* 2021; **12**.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Givrad S, Hartzell G, Scala M: **Promoting infant mental health in the neonatal intensive care unit (NICU): A review of nurturing factors and interventions for NICU infant-parent relationships.** *Early Hum. Dev.* 2021; **154**: 105281.
Publisher Full Text

Hodel AS: **Rapid infant prefrontal cortex development and sensitivity to early environmental experience.** *Dev. Rev.* 2018; **48**: 113–144.
Publisher Full Text

Ionio C, Lista G, Mascheroni E, *et al.*: **Premature birth: Complexities and difficulties in building the mother–child relationship.** *J. Reprod. Infant Psychol.* 2017; **35**(5): 509–523.
PubMed Abstract | **Publisher Full Text**

Kiel EJ, Kalomiris AE: **Current themes in understanding children's emotion regulation as developing from within the parent–child relationship.** *Curr. Opin. Psychol.* 2015; **3**: 11–16.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Korja R, Latva R, Lehtonen L: **The effects of preterm birth on mother–infant interaction and attachment during the infant's first two years.** *Acta Obstet. Gynecol. Scand.* 2012; **91**(2): 164–173.
PubMed Abstract | **Publisher Full Text**

Levac D, Colquhoun H, O'Brien KK: **Scoping studies: Advancing the methodology.** *Implement. Sci.* 2010; **5**: Article 69.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Lucas JE, Richter LM, Daelmans B: **Care for child development: An intervention in support of responsive caregiving and early child development.** *Child Care Health Dev.* 2018; **44**(1): 41–49.
Publisher Full Text

McClimans L: *Measurement in medicine: Philosophical essays on assessment and evaluation.* Rowman & Littlefield International; 2017.
Publisher Full Text

Nascimento TF, Bocchi SCM, Trenado RM, *et al.*: **Instruments to measure interaction of mothers and newborns: A systematic review.** *Infant Behav. Dev.* 2023; **71**: 101825.
PubMed Abstract | **Publisher Full Text**

Page MJ, McKenzie JE, Bossuyt PM, *et al.*: **The PRISMA 2020 statement: An updated guideline for reporting systematic reviews.** *BMJ.* 2021; **372**.
Publisher Full Text

Parent-Infant Foundation: **Parent-infant relationships (PAIR) services commissioning toolkit.** 2023.
Reference Source

Peters MDJ, Godfrey C, McInerney P, Munn Z, *et al.*: **Scoping reviews.** Aromataris E, Lockwood C, Porritt K, *et al.*, editors. *JBI manual for evidence synthesis.* JBI; 2024.
Publisher Full Text

Nakić Radoš S, Akik BK, Žutić M, *et al.*: **Diagnosis of peripartum depression disorder: A state-of-the-art approach from the COST Action Riseup-PPD.** *Compr. Psychiatry.* 2024; **130**: 152456.
PubMed Abstract | **Publisher Full Text**

Nakić Radoš S, Matijaš M, Anđelinović M, *et al.*: **The role of posttraumatic stress and depression symptoms in mother-infant bonding.** *J. Affect. Disord.* 2020; **268**: 134–140.
PubMed Abstract | **Publisher Full Text**

Rusanen E, Lahikainen AR, Vierikko E, *et al.*: **A longitudinal study of maternal postnatal bonding and psychosocial factors that contribute to social-emotional development.** *Child Psychiatry Hum. Dev.* 2024; **55**: 274–286.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Sanefuji M, Sonoda Y, Ito Y, *et al.*: **Physical growth and neurodevelopment during the first year of life: A cohort study of the Japan Environment and Children's Study.** *BMC Pediatr.* 2021; **21**: Article 360.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Shone I, Gregg L, Wittkowski A: **Assessing the parent–infant relationship: A two-stage, COSMIN-informed systematic review evaluating clinician-rated measures.** *Front. Psych.* 2025; **16**: Article 1426198.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Stein A, Pearson RM, Goodman SH, *et al.*: **Effects of perinatal mental disorders on the fetus and child.** *Lancet.* 2014; **384**(9956): 1800–1819.
Publisher Full Text

Svanberg PO, Barlow J, Tigbe W: **The parent–infant interaction observation scale: Reliability and validity of a screening tool.** *J. Reprod. Infant Psychol.* 2013; **31**(1): 5–14.
Publisher Full Text

Swan K, Speyer R, Scharitzer M, *et al.*: **Measuring what matters in healthcare: A practical guide to psychometric principles and instrument development.** *Front. Psychol.* 2023; **14**.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Taylor A, Atkins R, Kumar R, *et al.*: **A new mother-to-infant bonding scale: Links with early maternal mood.** *Arch. Womens Ment. Health.* 2005; **8**: 45–51.
Publisher Full Text

Toivo J, Tulivuo N, Kanzaki M, *et al.*: **First-time parents' bonding with their baby: A longitudinal study on Finnish parents during the first eight months of parenthood.** *Children.* 2023; **10**(11): Article 1806.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Treyvaud K, Spittle A, Anderson PJ, *et al.*: **A multilayered approach is needed in the NICU to support parents after the preterm birth of their infant.** *Early Hum. Dev.* 2019; **139**: Article 104838, 104838.
PubMed Abstract | **Publisher Full Text**

Tricco AC, Lillie E, Zarin W, *et al.*: **PRISMA extension for scoping reviews (PRISMA-ScR): Checklist and explanation.** *Ann. Intern. Med.* 2018; **169**(7): 467–473.
Publisher Full Text

UNICEF: **Mapping the global goals for sustainable development and the Convention on the Rights of the Child.** 2016.
Reference Source

United Nations Children's Fund: **Early moments matter for every child.** 2017.
Reference Source

Wittkowski A, Vatter S, Muhinyi A, *et al.*: **Measuring bonding or attachment in the parent-infant-relationship: A systematic review of parent-report assessment measures, their psychometric properties and clinical utility.** *Clin. Psychol. Rev.* 2020; **82**: 101906.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Open Peer Review

Current Peer Review Status: ? ? ?

Version 1

Reviewer Report 26 June 2026

https://doi.org/10.21956/openreseurope.25540.r75042

© **2026 Stuart A.** This is an open access peer review report distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

?

Anne Christine Stuart
University of Copenhagen, Copenhagen, Denmark

Thank you for the opportunity to review the study protocol "Instruments for assessing parent-infant relationships: a scoping review protocol". I want to applaud the authors for conducting this ambitious but very important work, and as a researcher, I am very interested in reading the final scoping review. However, I have some comments before I can approve the protocol.

I think that the authors are very ambitious in describing instruments assessing all aspects of parent-infant relationship. As the authors point out, this is a very broad construct, covering many aspects of behaviour. Therefore, I think the authors should pre-specify which specific aspects this review will cover. As it stands, the theoretical understanding and constructs mentioned in the introduction seem to be based on attachment research. However, the authors also mention cognitive aspects of the parent-infant relationship. I would suggest that the authors clarify their theoretical understanding to give the reader a better understanding of the inclusion and exclusion of instruments in the review.

I think that there are better and more appropriate references on the importance of parent-infant relationships than the Parent-Infant Foundation website.

The introduction needs a stronger rationale for only focusing on the 24 months – right now, it is not really explicitly mentioned why parent-infant relationship during this period is of particular interest.

It is not clear to me why only studies with formally diagnosed parents are excluded from the study – what about if the parents are at-risk of mental health problems? Or do the authors mean to include studies with only community samples? This needs to be specified.

When conducting the data extraction, I would suggest also looking into the gender of the parent, as I would suspect that not many instruments have been either developed or validated specifically for fathers.

Is the rationale for, and objectives of, the study clearly described?
Partly

Is the study design appropriate for the research question?
Yes

Are sufficient details of the methods provided to allow replication by others?
Yes

Are the datasets clearly presented in a useable and accessible format?
Not applicable

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Parent-infant relationship quality, psychometrics, quantitative methods

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Reviewer Report 22 June 2026

https://doi.org/10.21956/openreseurope.25540.r75041

© 2026 Kuchinke L. This is an open access peer review report distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

?

Lars Kuchinke
International Psychoanalytic University Berlin, Berlin, Germany

Thank you very much for considering me as a reviewer for this interesting and extremely important study (protocol). As a researcher, I am eagerly awaiting this systematic review and the list of identified instruments it contains. In its current form, the manuscript already covers the research topic comprehensively and provides the details on the methods - I therefore have only a few additional recommendations that the authors might wish to consider.

A first point is the definition of the parent-infant relationship. As far as I can tell, there is no uniform definition that many researchers can refer to - but the theoretical model on which the current study is based (i.e., what is the parent-child relationship, what aspects does it encompass, and which of these can or should be measured) has an impact on the inclusion and exclusion criteria and should therefore be described explicitly and with more detail. For example, attachment is often described as a unique concept with a long tradition in developmental research and otherwise could be understood as a dimension of the parent-infant relationship. However, only the second definition leads to attachment instruments being evaluated in this systematic review. I would encourage the authors to also describe the relationship between the different

dimensions of parent-infant relationship.
I also support the recommendation that the authors reconsider their decision—or at least provide a better justification—for excluding studies "involving parents with formally diagnosed psychological disorders." The text remains somewhat unclear here, since subsequent statements are nevertheless directed at practitioners and clinical samples—so how can this generalization be valid given the initial decision?
Some more minor recommendations regard, for example, the idea, that gender of the participants in the later identified studies could also be reported. I furthermore also have my difficulties with the reference to the 'Parent-Infant foundation' PowerPoint (which 'feels' less scientific) and believe that other publication might be more appropriate. And, if possible, a list or table summarizing all inclusion and exclusion criteria could be helpful to readers of the study protocol.

Wouldn't it also be appropriate to include Google Scholar in the search?
Could the authors include a reference to the Covidence software?

Is the rationale for, and objectives of, the study clearly described?
Partly

Is the study design appropriate for the research question?
Yes

Are sufficient details of the methods provided to allow replication by others?
Partly

Are the datasets clearly presented in a useable and accessible format?
Not applicable

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Psychological Methods, Meta-Analyses, Parent-Infant Psychotherapy

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Reviewer Report 08 June 2026

https://doi.org/10.21956/openreseurope.25540.r74666

© 2026 Rosan C. This is an open access peer review report distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

?

Camilla Rosan
Anna Freud, London, UK

This is such an exciting and important paper. I would hugely recommend it but I have identified a

few areas for further consideration.

I think there needs to be further specificity provided in the title and background and concept section about the unique value of this review by naming the actual parent-infant constructs/dimensions it is intentionally aiming to review. This is essential. The parent-infant relationship is not a woolly monolith but comprises of important and very different dimensions which have very different instruments linked to them. if helpful, I would advise they consider: parent-perceived bonding; parent and clinician's perceived sensitivity/responsivity; parent and clinician perceived reflective function/mind-mindedness/mentalisation (a more cognitive construct); parent and clinician perceived co-regulation/mutuality; clinician rated attachment; clinician rated maternal atypical behaviours/disorganisation. I think the age range (not pregnancy, birth -24 months) covered needs to be included in the title and intro more explicitly.

I would encourage the authors to be more consistent and clearer in their structure with language, and organise instruments according to whether they are parent-report or clinician rated (and the limitations of this much earlier). Another huge barrier in instruments is the age ranges they support within the 24month age range. We have blind spot with our youngest babies which is also important to mention here. This should be mentioned in the intro/rationale.

I would not use the Parent-Infant Relationship report as a reference - I think they can find something more evidence based.

I think it is a great shame they are excluding parents with mental health difficulties where much literature sits and where clinically much parent-infant assessment also sits - this should be reviewed and a stronger rationale proposed. The PBQ for example was specifically developed for PMH difficulties.

I would also encourage the use of an implementation framework to be considered in terms of the utility of the tools - their costs, their time to complete, their time to train, practitioner/patient acceptability data etc.

Is the rationale for, and objectives of, the study clearly described?
Partly

Is the study design appropriate for the research question?
Partly

Are sufficient details of the methods provided to allow replication by others?
Partly

Are the datasets clearly presented in a useable and accessible format?
Not applicable

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: I am Consultant in Perinatal Clinical Psychology and Associate Professor specialising in perinatal mental health and instrument measurement

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.